



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,716	08/13/2001	Antoine J. Rouphael	2001P14759US	8933

7590 02/21/2007
Siemens Corporation
Attn: Elsa Keller, Legal Administrator
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

AGHDAM, FRESHTEH N

ART UNIT	PAPER NUMBER
----------	--------------

2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/929,716

Applicant(s)

ROUPHAEL, ANTOINE J.

Examiner

Freshteh N. Aghdam

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/16/2006 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2611

Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Segal et al (US 6,647,069).

As to claims 1-2, Segal teaches a method for reducing intersymbol interference in a communications system, comprising specifying an initial shaping filter (Fig. 4, means 414); determining a level of intersymbol interference for a final shaping filter, wherein the final shaping filter is obtained by further processing the initial shaping filter (Fig. 4, means 414 and 417) including modeling channel noise and intersymbol interference (means 414 and 417); and updating final shaping filter coefficients iteratively at a sampling rate until the steady state of the system is reached (Fig. 4, means 417). One of ordinary skill in the art would recognize that it is inherent for any filter to work at a specific sampling rate/ period; therefore, the filter coefficients are updated at a specific rate (i.e. optimal sampling points other than non-sampling points).

As to claim 3, Segal teaches convolving the spectral shaping filter (Fig. 4, means 405 and 414) with its matched filter to derive the shaping filter (Fig. 4, means 414).

As to claims 4-5, Segal teaches a filter (Fig. 4, means 414) with certain time domain and spectral characteristics being convolved with its matched filter counterpart (Fig. 4, means 405); convolving said given filter and said matched filter to obtain an initial shaping filter (Fig. 4, means 405, 414, and 417; Col. 10, Lines 30-35); generating a noise data sequence, wherein said noise data sequence comprising a channel noise and interference model (Fig. 4, means 409-410 and 412-414; Col. 5, Lines 29-64); deriving an optimized filter responsive to the convolution between the data sequence that includes noise and the given filter (means 414) since as one of ordinary skill in the

Art Unit: 2611

art would clearly recognize that the relationship between the input and output of any filter in the time domain is the convolution of the input with the transfer function of the filter, which is equal to the output signal of the filter. And minimizing an error metric at points on the initial shaping filter for producing a signal with minimal ISI period utilizing an LMS algorithm, wherein the filter (Fig. 4, means 417; Col. 6, Lines 35-40). Segal is not explicit about updating final shaping filter coefficients at optimal sampling points not any other sampling points until the intersymbol interferences is at or below a desired level. One of ordinary skill in the art would recognize that it is inherent for any filter to work at a specific sampling rate/ period; therefore, the filter coefficients are updated at a specific rate (i.e. optimal sampling points other than non-sampling points).

As to claim 6, Segal teaches a device comprising a coder for encoding (Fig. 4, means 404); an RF modulator (Fig. 4, means 406); and a shaping filter for shaping said coded data, the shaping filter generated by constraining that the filter coefficients in their adaptation at the optimal sampling point, an initial shaping filter (Fig. 4, means 414 and 417) comprising a channel noise model and intersymbol interference shaping filter for minimizing intersymbol interference (Fig. 4, means 409-410 and 412-414), said initial shaping filter derived from a matched filter and noise data sequence (means 414). Segal is not explicit about updating final shaping filter coefficients at optimal sampling points not any other sampling points until the intersymbol interferences is at or below a desired level.

As to claim 7, Segal further teaches convolving a filter with its corresponding matched filter (Fig. 4, means 405 and 414).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segal et al.

As to claims 8-9, Segal discloses that constraining is iteratively performed until an error metric reaches a steady value by utilizing an adaptive LMS algorithm (Col. 6, Lines 35-40). One of ordinary skill in the art would recognize that by utilizing the LMS algorithm which is an adaptive algorithm the filter coefficients are updated until the error metric is minimized and/ or reaches a predetermined value.

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segal et al, and further in view of Laamanen et al (US 2003/0035495).

As to claims 10-11, Segal teaches a filter (Fig. 4, means 414) with certain time domain and spectral characteristics being convolved with its matched filter counterpart (Fig. 4, means 405); convolving said given filter and said matched filter to obtain an initial shaping filter (Fig. 4, means 405, 414, and 417; Col. 10, Lines 30-35); generating a noise data sequence, wherein said noise data sequence comprising a channel noise and interference model (Fig. 4, means 409-410 and 412-414; Col. 5, Lines 29-64); deriving an optimized filter responsive to the convolution between the data sequence

Art Unit: 2611

that includes noise and the given filter (means 414) since as one of ordinary skill in the art would clearly recognize that the relationship between the input and output of any filter in the time domain is the convolution of the input with the transfer function of the filter, which is equal to the output signal of the filter. And minimizing an error metric at points on the initial shaping filter for producing a signal with minimal ISI period utilizing an LMS algorithm, wherein the filter (Fig. 4, means 417; Col. 6, Lines 35-40). Segal is not explicit about updating final shaping filter coefficients at optimal sampling points not any other sampling points until the intersymbol interferences is at or below a desired level. One of ordinary skill in the art would recognize that it is inherent for any filter to work at a specific sampling rate/ period; therefore, the filter coefficients are updated at a specific rate (i.e. optimal sampling points other than every sample). Segal is not explicit about the shaping filter works at an upsampling period. Laamanen discloses a shaping filter that works at different optimal sampling rates/ periods (Par. 77). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Laamanen with Segal in order for the shaping filter to work at different optimal sampling rates/ periods including upsampling rate/ period; therefore, the system flexibility is increased.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.


Art Unit: 2611

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Freshteh Aghdam
Examiner
Art Unit 2611

February 9, 2007


KEVIN BURD
PRIMARY EXAMINER